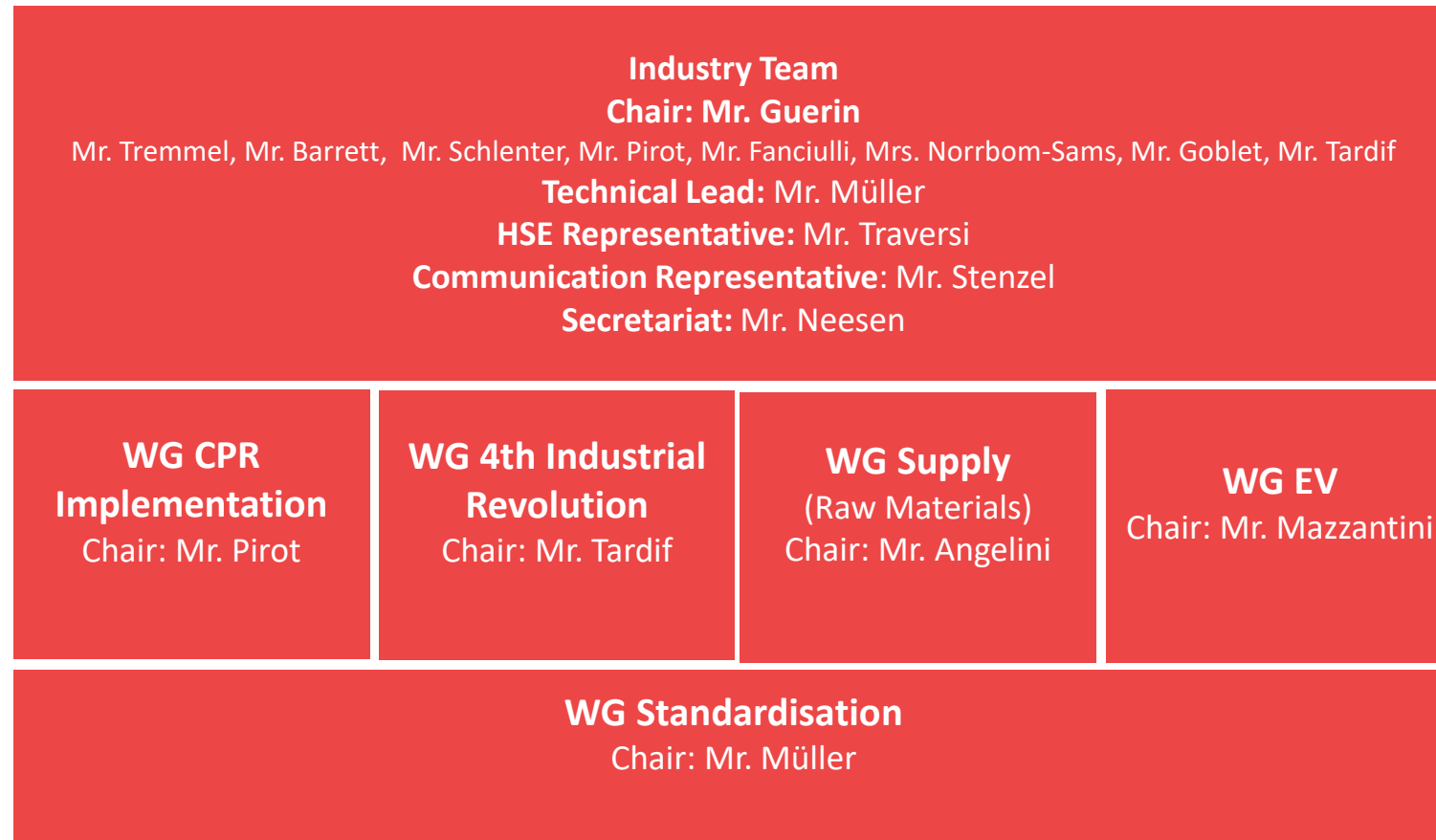


Europacable Industry Team

Mr. Christopher Guerin, Chairman



Industry Team – The Structure



INDUSTRY

INDUSTRY

**Electric Mobility will
make our World greener**



**4th Industrial revolution will
make industries more efficient**



CPR will make our World safer



Standardisation
Raw Materials evolution



Vision

"I expect the global auto industry to see more changes in the next five years than it has in the last 20. And those changes will bring tremendous opportunities for those companies with the skills and foresight to seize them."

Carlos Ghosn, Chairman and CEO, Renault-Nissan Alliance

"A shift is under way that will lead to widespread adoption of EVs in the next decade."

By Tom Randall, Science & Energy at Bloomberg Feb. 25, 2016

- The market for EV will grow by 35% per year.
- Many alternative operators (e.g. Tesla) are building their charging infrastructure already.
- On the connector side, work in CENELEC/IEC for low chargers is well advanced, the work of fast chargers is expected to be finalised in 1 to 2 years.
- The topic of AC vs DC is of high relevance.

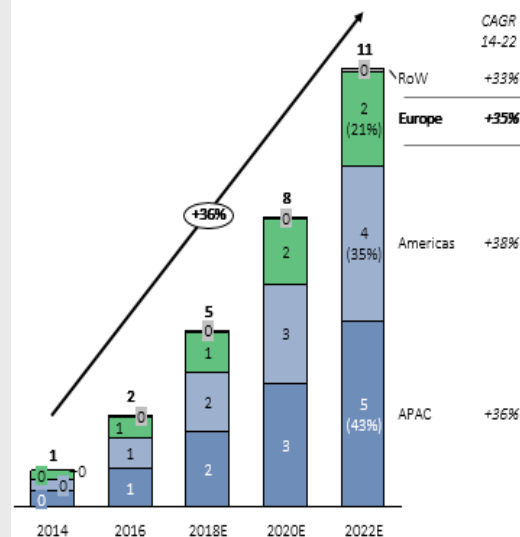
ACTION UPDATE

Chairman Mr. Mazzantini

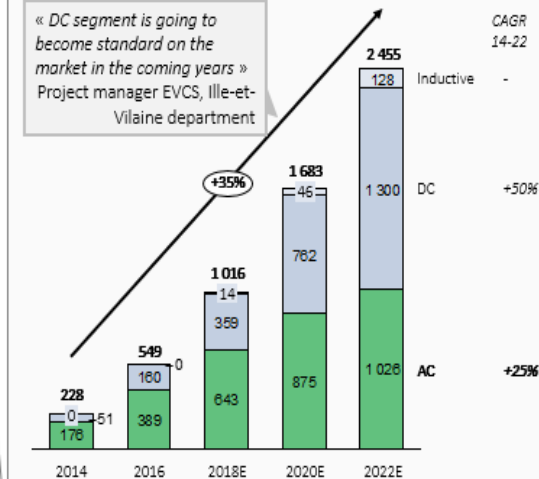
- Decision the work will be done jointly with the harness and connector industry.
- The Secretary-General had made the link to ZVEI, which runs already an automotive group
- We have suggested to drive discussion with non german cable makers

Geographies & power – Europe expected to grow at sustained pace on 2014-22 period (+35% p.a.) on AC market (+25%) but slower than world (+36%) and DC (+50%)

Evolution World EVCS market by geography
€bn, %, 2016



Europe EVCS market by power type
€m, %, 2016



Nota bene: DC EVCS >10 times more expensive → AC park still majority in 2022













Vision

"I expect the global auto industry to see more changes in the next five years than it has in the last 20. And those changes will bring tremendous opportunities for those companies with the skills and foresight to seize them."

Carlos Ghosn, Chairman and CEO, Renault-Nissan Alliance

"A shift is under way that will lead to widespread adoption of EVs in the next decade."

By Tom Randall, Science & Energy at Bloomberg Feb. 25, 2016

	Plug type	Maximum capacity	Description	Compatibility with cars	Car manufacturers
AC	 Type 1 (Single phase)	32 A / 7.4kW	<ul style="list-style-type: none"> US Development One side with ordinary plug and the other side can be connected to the car 		<ul style="list-style-type: none"> Nissan Leaf Renault (Kangoo etc.) Toyota Prius Citroen C-Zero
	 Type 2 (Single-3phase) ²	43.5kW	<ul style="list-style-type: none"> Developed in Germany by Mennekes Likely to become standard as most flexible A combo system is being developed to make it compatible for DC charging 		<ul style="list-style-type: none"> Renault Zoe Recommended by ACEA²
	 Type 3 (Single-3phase)	43.5kW	<ul style="list-style-type: none"> Asian development Needs to be amended for different charging capacities 		<ul style="list-style-type: none"> Abandoned by Renault (but still used by former models e.g. Zoe) No longer listed by EU
DC	 CHAdeMO (DC – not standard)	62.5kW	<ul style="list-style-type: none"> Fast charging Only compatible with Japanese plugs, no standard (yet) Europe exclusion as a standard starting 2024 	 High until 2024	<ul style="list-style-type: none"> Toyota Mitsubishi Nissan Honda
	 Combo2 (AC-DC)	140kW	<ul style="list-style-type: none"> Developed in Germany Compatible with AC & DC High probability to become standard in Europe for DC starting 2019 		<ul style="list-style-type: none"> VW BMW Ford Mercedes Audi / Porsche



Vision

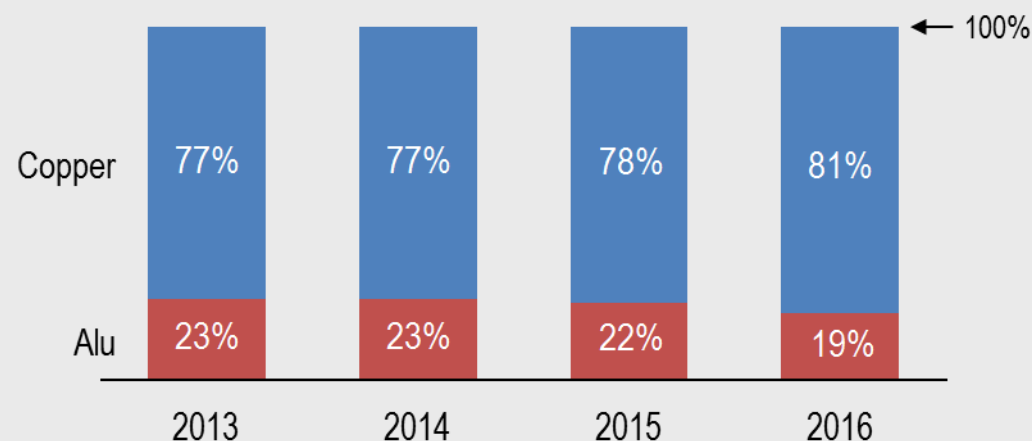
The direct copper industry in the EU is made up of around 500 companies, has an estimated turnover of about €45 billion, and employs around 50,000 people. While the global economic situation remained relatively weak, in 2014, the world demand for copper was at a record high of around 27 million tonnes. This made up of 23 million tonnes of refined production plus 4 million tonnes of direct-melt scrap. EU's demand was estimated at around 4.2 million tonnes.

Is the lightweighting potential of aluminium a potential “game changer” for our industry?

ACTION UPDATE

Chairman Mr. Angelini

- Weight is a driver of substitution for Automotive and rolling stock, where however space, flexibility, and connectivity are the major obstacles to this substitution trend, **and so far this change has not yet taken place.**
- Weight is also a driver in favor of Aluminum in some submarine applications, where it may lead to higher lengths / lower number of joints. **However the size of the cable may become an issue, and the trade off is to be defined case by case.**



▶ No major trend change however some Japanese Automotive wire harnesses have started to shift from Copper to Alu. To be monitor given the size of Automotive cable consumption.



Vision

- The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres

ACTION UPDATE CHAIRMAN L TARDIFF

- INTERNAL Prepare a white paper around Industry 4.0 (potential and benefit for the cable industry)
- EXTERNAL Prepare a communication campaign “How the cable industry is supporting the smart and connected factory”
- BRUSSELS Contact the various commission to promote Europacable Industry 4.0 initiative :
 - *INDUSTRY 4.0 in GERMANY*
 - *LA NOUVELLE FRANCE INDUSTRIELLE IN FRANCE*
 - *SMART FACTORY IN NETHERLANDS*
 - *CLUSTERS 4.0 IN BRUSSELS*

INDUSTRY 4.0 will boost both segments :

1. through intensity of automation & robotics implementation
2. through the digitization of Machines and systems connectivity

Worldwide Cable demand in Billion Euro

